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10/581,394	06/02/2006	Satoshi Aoyama	128094	3772
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EXAMINER MARTIN, ANGELA J				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/581,394

Applicant(s)

AOYAMA ET AL.

Examiner

ANGELA J. MARTIN

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's response with traverse of the election of species in the reply filed on 8/4/08 is acknowledged. The traversal is found persuasive because lack of unity of invention is not established. Thus, the election is withdrawn.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In independent claim 1, "forming a conductive layer on the formed thin electrolyte layer electronically-discontinued with the hydrogen-permeable metal"layer via the pores" is not described nor defined in the Specification.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. Regarding claim 1, the phrase "electronically-discontinued" renders the claim indefinite because it is unclear what this phrase encompasses since it is not defined nor described in the specification.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al., EP 0621648 A2.

Ikeda et al., teach a manufacturing method of a fuel cell (0006), which comprises a hydrogen-permeable metal layer of a hydrogen-permeable metal and an electrolyte layer that is located on the hydrogen-permeable metal layer and has proton conductivity (Example 3), said manufacturing method comprising: forming a thin electrolyte layer on the hydrogen-permeable metal layer, wherein the electrolyte layer has pores (p. 8, lines 40-55); and forming a conductive layer on the formed thin electrolyte layer electronically-discontinued with the hydrogen-permeable metal layer via the pores, wherein the conductive layer has electrical conductivity (Example 3). A manufacturing

method in accordance with claim 1, wherein the conductive layer is an electrode (abstract). A manufacturing method in accordance with claim 1, wherein said forming a conductive layer is implemented by releasing a conductive material toward the thin electrolyte layer in a direction perpendicular to the thin electrolyte layer, so as to form the conductive layer that is thinner than the thin electrolyte layer (p. 2, lines 35-52). A manufacturing method in accordance with claim 1, wherein said forming a conductive layer is implemented by releasing a conductive material toward the thin electrolyte layer at a specific angle that prevents the conductive material from being deposited on surface of the hydrogen-permeable metal layer, which is exposed on the pores present in the thin electrolyte layer, so as to form the conductive layer (p. 2, lines 53-58, p. 1, line1). A manufacturing method in accordance with claim 3, wherein said forming a conductive layer is implemented by adopting a vacuum deposition technique to form the conductive layer (p. 3, lines 45-58). A manufacturing method in accordance with claim 1, wherein said forming a conductive layer is implemented by applying a paste, which contains an electrically conductive material and has a predetermined level of viscosity for effectively preventing invasion of the paste into the pores present in the thin electrolyte layer, onto the thin electrolyte layer, so as to form the conductive layer (Example 3). A manufacturing method in accordance with claim 1, wherein said forming a conductive layer comprises: forming a conductive film of an electrically conductive material; and transferring the conductive film onto the thin electrolyte layer, so as to form the conductive layer (Example 3). A fuel cell comprising a hydrogen-permeable metal layer of a hydrogen-permeable metal and an thin electrolyte layer that is located

on the hydrogen-permeable metal layer and has proton conductivity, said fuel cell being manufactured by a manufacturing method in accordance with claim 1 (abstract). Ikeda et al., teach a manufacturing method in accordance with claim 6, wherein said forming a dielectric layer is implemented by coating inside of the pores of the thin electrolyte layer with an insulating material by plating to form the dielectric layer (p. 8, Example 3). A manufacturing method in accordance with claim 6, wherein said forming a dielectric layer further comprises: coating inside of the pores of the thin electrolyte layer with a metal, which is oxidized to an insulating material, to form a metal coat layer; and oxidizing the metal coat layer to form the dielectric layer (p. 8, lines 40-55). A manufacturing method in accordance with claim 1, wherein said forming the conductive layer further comprises: forming a dielectric layer in the pores present in the thin electrolyte layer, wherein the dielectric layer is mainly made of an insulating material and blocks off a connection between surface of the hydrogen-permeable metal layer, which is exposed on the pores present in the thin electrolyte layer, and outside of the pores; and coating the thin electrolyte layer and the dielectric layer formed in the pores of the thin electrolyte layer with the conductive layer (p. 8, Example 3). A manufacturing method in accordance with claim 6, wherein said forming a dielectric layer is implemented by filling the pores of the thin electrolyte layer with dielectric fine particles to form the dielectric layer (p. 6, lines 44-55). A manufacturing method in accordance with claim 1, wherein said forming a conductive layer comprises: filling the pores present in the thin electrolyte layer with fine particles; forming the conductive layer on the thin electrolyte layer having the pores filled with the fine particles; and removing the

fine particles from the pores, subsequent to said forming the conductive layer on the thin electrolyte layer (p. 7, lines 10-48). A manufacturing method in accordance with claim 10, wherein said removing the fine particles is implemented by adopting a physical technique to remove the fine particles (p. 7, lines 10-48). A manufacturing method in accordance with claim 1, wherein said forming a conductive layer comprises: forming a protective layer to cover the thin electrolyte layer; and forming the conductive layer on the protective layer (p. 3, lines 39-54). A manufacturing method in accordance with claim 13, wherein the protective layer is mainly made of an insulating material having proton conductivity (p. 3, lines 39-54). A manufacturing method in accordance with claim 16, wherein said forming a conductive layer is implemented by adopting one of arc ion plating, emulsion deposition, and cluster beam deposition techniques to coat the thin electrolyte layer with the electrically conductive material (Preparation 1). A manufacturing method in accordance with claim 1 wherein said forming a conductive layer is implemented by adopting one of arc ion plating, emulsion deposition, and cluster beam deposition techniques to coat the thin electrolyte layer with the electrically conductive material (Preparation 1). A manufacturing method in accordance with claim 1, wherein said forming a conductive layer is implemented by applying a paste, which contains an electrically conductive material and has a predetermined level of viscosity for effectively preventing invasion of the paste into the pores present in the thin electrolyte layer, onto the thin electrolyte layer, so as to form the conductive layer (Preparation 1-3). A manufacturing method in accordance with claim 1, wherein said forming a conductive layer comprises: forming a conductive film of an electrically

conductive material; and transferring the conductive film onto the thin electrolyte layer, so as to form the conductive layer (Example 3). A fuel cell comprising a hydrogen-permeable metal layer of a hydrogen-permeable metal and an thin electrolyte layer that is located on the hydrogen-permeable metal layer and has proton conductivity, said fuel cell being manufactured by a manufacturing method in accordance with claim 1 (Example 3). A manufacturing method in accordance with claim 1, wherein the pores are through-holes (p. 2, lines 53-57 and p. 3, line 1).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because although the prior art of record does not recite coating in the pores, the deposition of the materials would provide a coating of the pores.

Response to Arguments

9. Applicant's arguments with respect to above claims have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-1288. The examiner can normally be reached on Monday-Friday from 10:00 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AJM
/Angela J. Martin/
Examiner, Art Unit 1795

Application Number**Application/Control No.**

10/581,394

Examiner

ANGELA J. MARTIN

**Applicant(s)/Patent under
Reexamination**

AOYAMA ET AL.

Art Unit

1795